UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/596,464	06/06/2007	Hanns-Ingo Maack	DE030425US1	6947

24737   7590   03/18/2010
PHILIPS INTELLECTUAL PROPERTY & STANDARDS
P.O. BOX 3001
BRIARCLIFF MANOR, NY 10510

EXAMINER
BITAR, NANCY

ART UNIT	PAPER NUMBER
2624	

MAIL DATE	DELIVERY MODE
03/18/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
	10/596,464	MAACK, HANNS-INGO
Office Action Summary	Examiner	Art Unit	
	NANCY BITAR	2624	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12/17/2009*.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5,7-9 and 11* is/are pending in the application.

     4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,7-9 and 11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 March 2009* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a)☒ All   b)☐ Some *   c)☐ None of:

        1.☒ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____.

        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

     * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail. Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

Response to Arguments

1.   Applicant's response to the last Office Action, filed 9/18/2009, has been entered and made of record.

2.   Applicant has amended claims 1, 2, 7 and 11. Claims 1-5, 7-9, and 11 are currently pending.

3.   Applicants arguments filed 12/17/2009 have been fully considered but are moot in view of the new ground(s) of rejection necessitated by the amendments. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Nields et al (US 7,496,398)

Examiner Notes

1.   Examiner cites particular columns and line numbers in the references as applied to the claims below for the convenience of the applicant. Although the specified citations are representative of the teachings in the art and are applied to the specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested that, in preparing responses, the applicant fully consider the references in entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the examiner.

Claim Rejections - 35 USC § 103

2.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or
> described as set forth in section 102 of this title, if the differences between the subject
> matter sought to be patented and the prior art are such that the subject matter as a whole
> would have been obvious at the time the invention was made to a person having ordinary
> skill in the art to which said subject matter pertains. Patentability shall not be negatived
> by the manner in which the invention was made.

3.   Claims 1-5,7-9 and 11 rejected under 35 U.S.C. 103(a) as being unpatentable over

Rogers et al (US 6,091,841) in view of Yanagita et al (US 2004/0151358) and further in view

of Nields et al (US 7,496,398)

4.   As to claims 1 and 2, Rogers et al teaches an image processing device for creating a

display image from an X-ray image in which at least a marker image ((label, figure 3 and column

14, lines 31-59) and a body part image are displayed (FIGS. 2 and 3, a digital mammogram

image 190 is first cropped to segment an analysis region 296 from the image and produce a

binary mask 298 corresponding to breast tissue in the analysis region. Preferably, the cropping is

performed automatically, although it could be cropped manually, column 4, lines 62-67; claim

1), wherein part-images which show the marker image and body part image are determined in the

X-ray image and the part-images are arranged in the display image in a spatially separate

manner, wherein the size of the display image is such that the part of the display image that is

free of the part-images is smaller than the corresponding part of the X-ray image (claims 12-14;

column 5, lines 20-49). Note that one can arrange the part-images in a "spatially separate

manner" by constituting just one of several straightforward possibilities from which one skilled

person would select, in order to reduce the size of the displayed image. Moreover, Rogers

teaches the potential micro calcifications are thresholded, clusters are detected, features are

computed for the detected clusters, and the clusters are classified as either suspicious or not

suspicious by means of a neural network. Thresholding is preferably by sloping local

thresholding, but may also be performed by global and dual-local thresholding. The locations in

the original digital mammogram of the suspicious detected clustered micro calcifications are

indicated. Parameters for use in the detection and thresholding portions of the system are

computer-optimized by means of a genetic algorithm. Moreover Roger clearly explains cropping

means for cropping the digital mammogram image to the largest rectangle that just encloses the

digital mammogram pixels corresponding to the dilated mask and segmenting an area of a

digital mammogram image corresponding to breast tissue from the remainder of the image by

using an image enhancement means for enhancing the digital representation to produce an

enhanced image in which the contrast of the area of the mammogram image corresponding to

breast tissue is increased; and a thresholding means for thresholding the enhanced image to

produce a binary image comprising a seed pixel; and a region growing means for region growing

the seed pixel in the binary image to produce a mask and a cropping means for cropping the

digital representation to the size of the largest object in the mask (column 4, lines 62-column 5,

lines 49). While Rogers meets a number of the limitations of the claimed invention, as pointed

out more fully above, Rogers fails to specifically teach the part images being a marker image

and a body part image. Specifically, Yanagita et al. teaches the display formatting section 17

comprises an image size adjusting section 17a, an image synthesizing section 17b and a subject

area recognizing section 17c. The image size adjusting section 17a adjusts the size of an image

so that the image size of a sub image is smaller than that of a main image. In the size-

adjustment, it is preferable to adjust the size of the sub image into a size so as to arrange the sub

image on the outside of the subject area recognized by the subject area recognizing section 17c (

paragraph [00253]) . Moreover, Yanagita teaches in FIG. 20 shows an example of an output

image 495 output by the image processing device 4. As shown in FIG. 20, in the output image

495, an image 495a of MLO-R and an image 495b of MLO-L are outputted in two-side output as

main images. In the image 495a of MLO-R, a reduced abnormality displayed image 495c of

MLO-R is displayed as a sub image with scale calibration and a reduction ratio added. The

reduced abnormality displayed image 495c indicates that no detected abnormal shadow

candidate exists. Moreover, in the indicating "NORMAL" are added, is displayed as a sub image

(see figure 1 and paragraph [0350-0352]. it would have been obvious to one of ordinary skill in

the art to use the display formatting section of Yanagita in Rogers et al in order to enable the

doctor to refer to and to use diagnosis aid information easily and rapidly in an inexpensive

system without changing conventional operation flow in a hospital, and improving diagnosis

performance and working efficiency of the doctor, by automatically outputting a hardcopy of a

medical image in a display format suitable for diagnosis. Neither Roger nor Yanagita teaches

that the marker image and the body part image are pushed together as close as possible and that

the part images have the same resolution and same number of pixels as in the x-ray images.

Nields et al teaches medical x-ray imaging and targeted ultrasound imaging in a combinative,

spatially correlated manner that is particularly apt for breast imaging/biopsy procedures. Nields

teaches the images being lied next to one another wherein a first graphical display for displaying

one or more images of the patient's breast so as to permit identification of an area of interest

within the patient's immobilized breast; a medical instrument operative for insertion to the

identified area of interest within the patient's breast; and a second graphical display, separate

from the first graphical display and located proximate to the patient's immobilized breast, for

providing real time images of the patient's compressed breast so that a user can monitor insertion

of the medical instrument to the identified location of interest using the second graphical display

located proximate to the patient's immobilized breast. Preferably, the second graphical display

can be translated and rotated to facilitate viewing during a medical procedure (see figure 6,16-

20, and abstract, column 18 lines 44 - 63) .Moreover, Nield teaches a processor operative to

drive the display device so as to display selected information in the viewing area; operating the

display device using the processor to provide a first display whereby the user is presented with

options corresponding to different operating modes of the medical device; operating the

processor in response to an input regarding the operating mode to provide instructions for

operating the medical device to obtain first and second images, where at least one of the images

is an ultrasound image; operating the processor to display the images in a first portion of the

graphical viewing area and provide graphical objects in a second portion of the viewing area for

use in entering information related to the medical procedure; and using the first and second

images to perform a medical procedure on the patient's breast. it would have been obvious to

one of ordinary skill in the art to push the images together using the user interface of Nields in

order to provides enhanced functionality, provides simple to follow instructions for medical

personnel and allows for close monitoring of a medical procedure for increased accuracy and

confidence in the results. Therefore, the claimed invention would have been obvious to one of

ordinary skill in the art at the time of the invention by applicant.

As to claim 3, Rogers et al teaches the X-ray device of claim 2, wherein in each case the same surface area of the X-ray image detector is exposed to X-ray radiation as the X-ray images are being created (normalizing the brightness values of the pixels in said digital mammogram image to produce a normalized image, claim 6-8; see also Yanagita paragraph [0264-0267])).

As to claim 4, Rogers et al teaches an image processing device of claim 1, wherein the part-images are spaced a minimum distance apart in the display image (Range of points in cluster calculated as maximum interpoint distance minus the minimum interpoint distance, column 11, lines 30-62)

As to claim 5, Rogers et al teaches the image processing device as claimed in claim 1, wherein the X-ray images are mammography X-ray images (a digital mammogram image, 190, figure 2 and 3).

The limitation of claim 7 has been addressed in claim1 above.

As to claim 8, Rogers et al teaches the method of claim 7, comprising the further step: d) filling the part of the display image that is free of the part-images with image information from the part of the X-ray image that is free of the part-images (claim 8, hole closing means for closing holes in the region grown mask to produce a closed mask, column 7, lines 27-64; see also Nields et al figure 19).

As to claim 9, Rogers et al teaches the image processing device of claim 1, wherein in order to determine the part-images use is made of a segmenting method in which the image values of the part of the X-ray image that is free of the part-images are determined and a coherent image area which contains mainly pixels with these image values is determined in the

X-ray image (column 5, lines 20-49; note that sub sampling every eight pixel in both horizontal and vertical directions reduces the amount of data) .

The limitation of claim 11 has been addressed above.

Conclusion

1.   Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NANCY BITAR whose telephone number is (571)270-1041. The examiner can normally be reached on Mon-Fri (7:30a.m. to 5:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vikkram Bali can be reached on 571-272-7415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

like assistance from a USPTO Customer Service Representative or access to the automated

information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Nancy Bitar/
Examiner, Art Unit 2624

/Wes Tucker/
Primary Examiner, Art Unit 2624